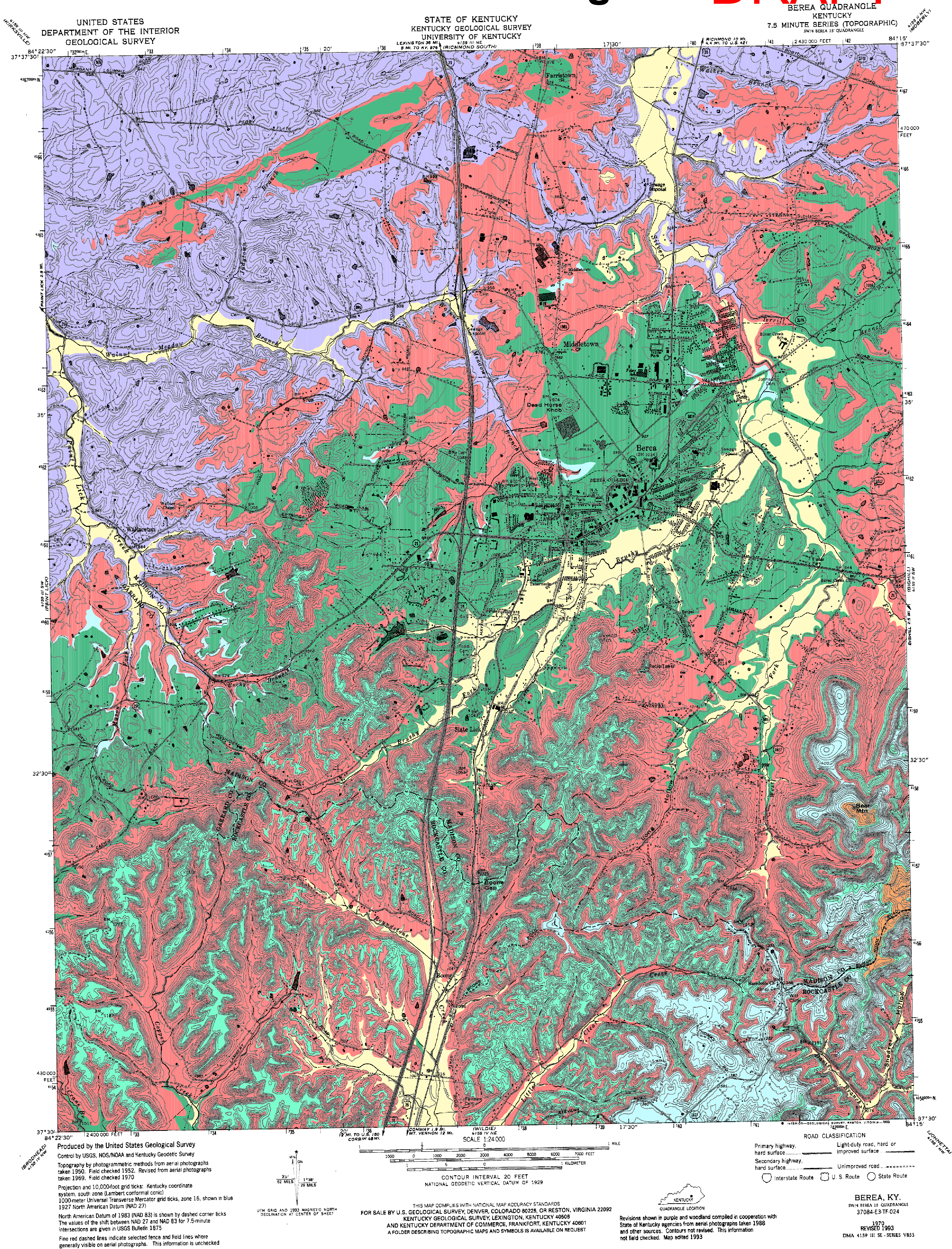


# Berea 7.5' Quadrangle

DRAFT

# Environmental Geology



## Unit 1: Limestone/Dolomite

Foundation and Excavation: These rocks are generally very hard, requiring blasting or heavy equipment for excavation. Provides an excellent foundation. Will support heavy loads, except where sinkholes may be present.

Landfills: Severe limitations. Ground water flowing through fractures and solution openings is easily contaminated by leachate from landfills.

Ground Water: yields 100 to 500 gal/day to drilled wells in the few places where it occurs below stream level. It yields almost no water to wells on narrow ridgetops or hillsides, but does yield water to small springs on hillsides, particularly at the heads of streams. Springs have large winter and small summer flows. Water is hard to very hard.

Pond Construction:

On-Site Septic Systems:

## Unit 2: Sandstone/Siltstone

Foundation and Excavation: These rocks are generally very hard, requiring blasting or heavy equipment for excavation. Provides an excellent foundation, which will support heavy loads except where excavated to lowermost few feet of unit.

Landfills: Severe limitations. Water flowing through openings between grains and along widely-spaced cracks could be easily contaminated by leachate from landfills.

Ground Water: Sandstones yield 100 to 500 gal/day to drilled wells on broad ridges, but almost no water to wells on narrow ridges or hilltops. They do yield water to small springs. Water from sandstone is soft, from siltstone, hard.

Pond Construction:

On-Site Septic Systems:

## Unit 3: Unconsolidated Deposits

Foundation and Excavation: Alluvium and unconsolidated deposits generally provide fair to good foundation, easily excavated.

Landfills: Present severe limitations for use as landfills.

Ground Water: The alluvium is too thin and fine-grained to yield much water. Water is hard. High-level terrace deposits yield 100 to 500 gal/day to wells where thick, otherwise, they are too thin and scattered to be important as an aquifer. They do yield water to small springs and dug wells. Water is soft.

Pond Construction:

On-Site Septic Systems:

## Unit 4: Fractured Shales

Foundation and Excavation: Generally good foundation material, moderately difficult to excavate. Fresh exposures of fractured shale are hard and require heavy machinery for excavation. Spring and seepage zones characteristically occur near the base of the black shale where it overlies the Crab Orchard Formation. Shale at the top of the Crab Orchard Formation is perpetually moist and plastic; construction along this interface requires special design to control drainage or conduct water away from the Crab Orchard.

Landfills: Present moderate limitations. Shales contain joints that transport water into the ground, which could possibly lead to contamination by leachate.

Ground Water: The New Albany yields 100 to 500 gal/day to drilled wells in valley bottoms and on uplands, usually at depths of less than 50 feet; water from greater depths is highly mineralized. The shale yield water to small springs. Water may be soft or highly mineralized. Salt, hydrogen sulfide, and iron are the usual objectionable constituents.

Pond Construction:

On-Site Septic Systems:

## Unit 5: Clay Shales

Foundation and Excavation: Expansive clay shale; landslides and slumps are common where valley slopes are steep or excavated cuts are oversteepened. Permeability low to very low. Poor foundation material, easily excavated.

Landfills: Only slightly limited for landfills. These shales are easily excavated and restrict ground-water movement. The high clay content can produce slippage and workability problems.

Ground Water: The shale yields almost no water to wells or springs, but may yield small amounts of water to wells in valley bottoms. Water is highly mineralized. Dolomite beds yield hard water to small springs.

Pond Construction:

On-Site Septic Systems:

## Unit 6: Interbedded Shales and Limestones

Foundation and Excavation: Generally good foundation material, moderately difficult to excavate. Artificial cuts and oversteepened banks are subject to slippage.

Landfills: Slight limitations. Ground-water movement generally restricted.

Ground Water: The Drakes yields 100 to 500 gal/day to drilled wells in broad valleys and along streams in upland, but almost no water to drilled wells on hillsides or ridgetops. It does yield water to small springs. Water is hard and in valley bottoms may contain salt or hydrogen sulfide. Shale limits amount of water that has access to thick limestone beds, and therefore restricts number of openings in these beds enlarged by solution. As a result, the limestone beds yield little water.

Pond Construction:

On-Site Septic Systems:

## Unit 7: Interbedded Shales and Sandstones/Siltstones

Foundation and Excavation: Generally good foundation material, moderately difficult to excavate.

Landfills: Areas underlain by shale present slight limitations, while areas underlain by sandstone/siltstone present severe limitations for use as landfills.

Ground Water: These rocks yield almost no water to wells on narrow ridges or hilltops. They do yield water to small springs. Water is soft.

Pond Construction:

On-Site Septic Systems:

## Unit 8: Interbedded Limestones and Shales

Foundation and Excavation: Excellent foundation material, difficult to excavate. Foundation will support heavy loads except where sinkholes may be present. Removal requires blasting and heavy power equipment; permeability low, with internal drainage along joints and fractures.

Landfills: Moderate limitations for landfills.

Ground Water: These rocks may yield 100 to 500 gal/day to drilled wells in broad valleys and along streams in uplands, but almost no water to drilled wells on hillsides or ridgetops. They do yield water to small springs. Water is hard and in valley bottoms may contain salt or hydrogen sulfide. Where thick limestone beds with little shale occur below stream level in valley bottoms or on uplands, they may have undergone solution enlargement of fractures and bedding-plane openings. Wells drilled into these limestone beds may produce more than 500 gal/day. These thick beds also yield water to some large springs.

Pond Construction:

On-Site Septic Systems:

# For planning use only

This map is not intended to be used for selecting individual sites. Its purpose is to inform land-use planners, government officials, and the public in a general way about geologic bedrock conditions that affect the selection of sites for various purposes.